

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (currently amended): In an NC machine tool, a ~~[[A]]~~ tool path data generation apparatus for automatically generating tool path data including position data on where to transfer a tool and cutting conditions ~~[[of a]]~~ for the tool in an NC machine tool, the tool path data generation apparatus comprising:

a feature data extractor ~~[[to]]~~ for extracting, on the basis of CAD-device-created geometry data on a workpiece to be machined by the machine tool, at least feature~~[[s]]~~ [[in]] data relating~~[[on]]~~ to ~~[[a]]~~ the three-dimensional shape final form of ~~[[a]]~~ the workpiece; on the basis of geometry data thereof created with using CAD,

a tool/cutting data storage ~~[[to]]~~ for storing~~[[e]]~~ data such as a including cutting-mode and tool information in accordance with determined by the extracted feature shape data, [[a]] and cutting-speed and [[a]] depth-of-cut information the cut in accordance with workpiece determined by the material of which the workpiece consists;[[,]]

a cutting method ~~setting determining unit to set for determining~~ an optimal cutting method for each of the final-form features of a workpiece, shape on the basis of the extracted feature data, ~~extracted by the feature data extractor and on the~~ data stored in the tool/cutting data storage;[[, and]]

a tool path data generator ~~[[to]]~~ for generating~~[[e]]~~ tool path data on the basis of the cutting method ~~set~~ determined by the cutting method ~~setting~~ determining unit; and

a machining information generator for generating, on the basis of the cutting method determined by the cutting method determining unit and on information stored in the tool/cutting data storage, machining information including tool consumption to machine to final form, estimated time to tool wear-out, and estimated time to machine to final form.

Claim 2 (currently amended): The tool path data generation apparatus as claimed in claim 1, wherein:

on the basis of the extracted feature data the cutting method ~~setting~~ determining unit divides a workpiece into ~~[[a]]~~ machining areas corresponding to ~~for each~~ the final-form features shape on the basis of the feature data extracted by the feature data extractor and sets to determine the cutting method for each divided machining area division the optimal cutting method~~[[,]]~~; and

the tool path data generator generates~~[[ing]]~~ tool path data ~~every~~ for each machining area division on the basis of the cutting methods determined ~~set~~ by the cutting method ~~setting~~ determining unit.

Claim 3 (canceled)

Claim 4 (currently amended): The tool path data generation apparatus as claimed in claim 3, further comprising a cutting scenario output unit ~~[[to]]~~ for outputting the cutting methods determined ~~set~~ by the cutting method ~~setting~~

determining unit and/or machining information ~~related to cutting~~ generated by the machining information generator ~~related to cutting~~.

Claim 5 (currently amended): The tool path data generation apparatus as claimed in claim 1 further comprising:

an NC cutting program generator ~~[[to]]~~ for generating~~[[e]]~~ an NC cutting program on the basis of tool path data generated by the tool path data generator~~;~~~~[[,]]~~ and

a program output unit ~~[[to]]~~ for outputting the NC cutting program generated by the NC cutting program generator.

Claim 6 (currently amended): The tool path data generation apparatus as claimed in claim 1, further comprising:

a motion data generator ~~[[to]]~~ for generating~~[[e]]~~, on the basis of tool path data generated by the tool path data generator, motion data to drive a servo mechanism of the NC machine tool ~~on the basis of tool path data generated by the tool path data generator~~~~;~~~~[[,]]~~ and

a motion data output unit ~~[[to]]~~ for outputting the motion data generated by the motion data generator.

Claim 7 (currently amended): A numerical controller ~~[[to]]~~ for controlling ~~[[an]]~~ operation of ~~[[the]]~~ an NC machine tool on the basis of tool path data including position data on where to transfer a tool and cutting conditions ~~[[of a]]~~ for the tool, the numerical controller comprising:

[[a]] the tool path data generator generation apparatus as claimed recited
in any of claims 1 to 6;[[,]] and

an executing unit [[to]] for sequentially executing[[e]] processes ~~in order on~~
~~the basis of~~ according to tool path data generated by the tool path data generator,
so as to control the operation of the NC machine tool.

Claim 8 (currently amended): A numerical controller [[to]] for controlling
[[the]] operation of [[the]] an NC machine tool on the basis of tool path data
including position data on where to transfer a tool and cutting conditions [[of a]] for
the tool, the numerical controller comprising:

[[a]] the tool path data generation apparatus as claimed recited in claim 4,
a cutting scenario storage [[to]] for storing[[e]] the cutting methods
determined set by the cutting method ~~setting~~ determining unit, and machining
information ~~related to cutting~~ generated by the machining information generator;
~~related to cutting,~~

an executing unit [[to]] for controlling the operation of the NC machine tool
by sequentially executing[[e]] processes ~~in order on the basis of~~ according to tool
path data generated by the tool path data generator, ~~wherein the executing~~
~~unit and by~~ temporarily stopping[[s]] the processes ~~when on~~ receiving interruption
signals, ~~while~~ and restarting ~~re-starts~~ the processes ~~when on~~ receiving
resume[[ing]] signals ~~for controlling the operation of the NC machine tool;~~[[,]] and

a cutting scenario rewriting unit [[to]] for rewriting[[e]] at least ~~one of either~~ the cutting methods or and the machining information ~~related to cutting~~ stored in the cutting scenario storage.

Claim 9 (currently amended): The numerical controller as claimed in claim 8, further comprising a tool/cutting data updating unit [[to]] for updating[[e]] data stored in the tool/cutting data storage by referring to the data, stored in the cutting scenario storage, that ~~which~~ has been rewritten by the cutting scenario rewriting unit.

Claim 10 (currently amended): The numerical controller as claimed in claim 9, further comprising a database output unit [[to]] for outputting data stored in the tool/cutting data storage.